

REMARKS

Applicants respectfully request that the above application be reconsidered, in view of the following remarks. Claims 1-2, 4-12, and 14-28 are currently pending.

Applicants acknowledge the statement at page 4 of the Office Action that Applicants' prior arguments/amendments have overcome the following rejections presented in the prior Office Action: (1) Claims 1-5, 8-15 and 18-27 under 35 U.S.C. § 102(b) as anticipated by U.S. Patent 6,025,078 (Rickerby et al.); (2) Claims 3-5 under 35 U.S.C. § 103(a) as unpatentable over U.S. Patent 3,525,597 (Mazdiyasni et al.); (3) Claims 3-5 under 35 U.S.C. § 103(a) as unpatentable over Mazdiyasni et al.; and (4) Claims 1, 8-9 and 21-23 under 35 USC 103(a) as unpatentable over U.S. Patent 6,730,422 (Litton et al.).

A. Response to Rejection of Claims 1-2, 4-12, 14-18 and 21-28 under 35 U.S.C. § 102(b) as Anticipated by Bruce

At page 2 of the Office Action, Claims 1-2, 4-12, 14-18 and 21-28 have been rejected under 35 U.S.C. § 102(b) as anticipated by U.S. Patent Application 2003/0224200 (Bruce).

Applicants respectfully traverse this rejection of these Claims, as currently presented. Contrary to what is alleged in the Office Action, the composition, article and method of these Claims are distinguishable over Bruce. While Bruce suggests that lanthana, neodymia and/or tantalum additions up to 5 or 10 weight % each, or up to 10 weight % total, can improve the impact resistance of yttria-stabilized zirconia at levels of yttria that can broadly range from about 1 to about 10 weight % (see paragraph [0023] at page 3 of Bruce), Bruce also teaches that the greatest impact resistance for lanthana, neodymia and/or tantalum additions occurs when the level of yttria is 4 weight % or less (see paragraph [0017] at page 2 and paragraph [0023] at page 3 of Bruce). The range of yttria (from about 4 to about 6 mole %) now defined in Claims 1, 8 and 21 is narrower than the broad range of yttria taught by Bruce and is greater than the 4 weight % or less yttria that Bruce suggests is preferred, and is therefore not taught by Bruce. Bruce particularly does not teach this claimed range of yttria in combination with the claimed range of lanthana (i.e., from about 0.8 to about 2 mole %).

Page 3 of the Office Action refers to a “composition comprising 90 wt% zirconia, 7 wt% yttria, and 3 wt% lanthana” that is alleged to correspond to “94.8 mol% zirconia, 4 mol% yttria, and 3 mol% lanthana.” Where this “composition” is taught by Bruce is not made clear by the Office Action, as is required by 37 CFR 1.104(c)(2). Even so, and assuming, but not agreeing, that the conversions from “wt%” to “mol%” are correct, the composition, article and method of Claims -2, 4-12, 14-18 and 21-28 are still distinguishable over this “composition.” Specifically, these Claims define a lower level of lanthana than is alleged for this “composition.”

For the foregoing reasons, Claims -2, 4-12, 14-18 and 21-28 are novel over Bruce.

B. Response to Rejection of Claims 1-2, 4-12, and 14-28 under 35 U.S.C. § 103(a) as Unpatentable over Bruce

At page 3 of the Office Action, Claims 1-2, 4-12, and 14-28 have also been rejected under 35 U.S.C. § 103(a) as unpatentable over Bruce.

Applicants respectfully traverse this rejection of these Claims, as currently presented. Contrary to what is alleged in the Office Action, the composition, article and method of these Claims are also unobvious over Bruce. Again, while Bruce suggests that lanthana, neodymia and/or tantalum additions up to 5 or 10 weight % each, or up to 10 weight % total, can improve the impact resistance of yttria-stabilized zirconia at levels of yttria that can broadly range from about 1 to about 10 weight % (see paragraph [0023] at page 3 of Bruce), Bruce also teaches that the greatest impact resistance for lanthana, neodymia and/or tantalum additions occurs when the level of yttria is 4 weight % or less (see paragraph [0017] at page 2 and paragraph [0023] at page 3 of Bruce). The range of yttria (from about 4 to about 6 mole %) now defined in Claims 8 and 21 is narrower than the broad range of yttria taught by Bruce and is greater than the 4 weight % or less yttria that Bruce indicates is preferred, and is therefore not suggested by Bruce. Bruce particularly does not suggest this claimed range of yttria in combination with the claimed range of lanthana (i.e., from about 0.8 to about 2 mole %).

Page 3 of the Office Action concedes that Bruce does not teach the claimed thicknesses of the thermal barrier coating (i.e., from about 30 to about 70 mils) of the turbine shroud of Claim 19, and “does not give specific examples falling within the claimed range.” Instead, the Office

Action alleges that the claimed invention would have been considered obvious “because the compositional properties taught by Bruce overlap the instantly claimed proportions and therefore are considered to establish a *prima facie* case of obviousness.” (Emphasis added.)

The Office Action inaccurately characterizes the “compositional properties” taught by Bruce and the instantly claimed proportions as “overlapping.” Specifically, the claimed range of lanthana (from about 0.8 to about 2 mole %) does not overlap with that taught by Bruce (i.e., 3 mole % of the exemplified “composition” according to the alleged conversion referred to in the Office Action). Moreover, the cited case law assumes that there are “overlapping” ranges between what is disclosed in the art and what is claimed, which is not the true. Accordingly, the Office Action’s reliance on the cited case law for establishing a *prima facie* case of obviousness is misplaced.

The Office Action further alleges that it would be obvious “to select any portion of the disclosed ranges including the instantly claimed ranges from the ranges disclosed in the prior art reference.” (Emphasis supplied.) This presumes that one skilled in the art would have a basis in Bruce for “selecting” the instantly claimed proportions of zirconia, yttria and especially lanthana. No such basis exists in Bruce for selecting the lower level of lanthana defined in the instant Claims. Far from being *prima facie* obvious, the benefit of the claimed lower level of lanthana in combination with the first metal oxide (e.g., yttria) is not recognized at all by Bruce. Indeed, without some specific suggestion of the benefit or advantage of the claimed lower level of lanthana with the first metal oxide, Bruce cannot possibly teach or suggest the composition, article or method of Claims 1-2, 4-12 and 14-28.

For the foregoing reasons, Claims 1-2, 4-12 and 14-28 are unobvious over Bruce.

C. Conclusion

In conclusion, Claims 1-2, 4-12, and 14-28 are novel and unobvious over the prior art relied in the Office Action. Accordingly, Applicants respectfully request that Claims 1-2, 4-12, and 14-28 be allowed to issue in the above application.

Respectfully submitted,

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August 24, 2005